



## ***Technology Demonstration Summary Sheet*** ***Starboldt™ Flashlamp Decontamination***

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### **THE NEED**

The decontamination of radioactively contaminated concrete is a concern during the decontamination and decommissioning (D&D) process. The primary decontamination objectives are: (1) a reduction in the surface contamination levels to reduce potential personnel and environmental exposure, and (2) the reduction of surface contamination levels to meet DOE Order 5400.5 for unrestricted use.

### **THE TECHNOLOGY**

The Starboldt™ flashlamp system is a self-contained proprietary system for coatings removal and decontamination that uses xenon flashlamps to remove surface coatings from substrates. The system operates by pulsing an electric current at the rate of 4 to 7 Hertz (Hz) to a xenon gas-filled quartz lamp. With the aid of a reflector housing, the emitted light is concentrated and projected onto the surface coating. The coating absorbs the light energy, decomposes into a fine ash, and is removed from the surface by means of a debris scrubber and vacuum filter system attached to the head.



**Starboldt™ Flashlamp Head**

### **THE DEMONSTRATION**

This demonstration tested Polygon Industry's Starboldt™ flashlamp technology for its ability to decontaminate approximately 600 square feet of concrete flooring by removing the coating layer without removing the concrete. The testing was performed on the service floor of the ANL - CP5 facility as part of the Large Scale Demonstration Program funded by DOE's Federal Energy Technology Center.

### **THE RESULTS**

The Flashlamp system was operated for approximately 8 hours, however, the technology was not able to remove the entire coating. During the demonstration, the electric current was adjusted several times in an attempt to establish the optimum Hertz setting, with the setting of 7 Hertz determined to be the most effective. However, although in some areas the coatings were removed down to the concrete, in most areas of the demonstration the bottom layer of paint or primer coating turned to a black "soot-like" residue of varying thickness, which remained fixed to the concrete (See Flashlamp Head Photo). The demonstration was stopped prior to completion and samples of the residue and paint coatings were collected for laboratory analysis. The investigation into the reason(s) for this problem is continuing.



**Pulse Forming Network**

### **CONTACTS**

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